

**REMARKS**

**I. INTRODUCTION**

Claims 68, 89, 113, 125, 131 and 148 have been amended above merely to clarify the subject matter recited therein. New claims 149-160 have been added, and support thereof can be found throughout the specification and in the drawings. (See Applicants' application, e.g., Figs. 1 and 5 and associated txt in specification). Accordingly, claims 68-160 are now under consideration in the above-referenced application. Provided above, please find a claim listing indicating the status of the presently-unamended claims, the amendments of claims 68, 89, 113, 125, 131 and 148 and the addition of new claims 149-160 on separate sheets so as to comply with the requirements set forth in 37 C.F.R. § 1.121. It is respectfully submitted that no new matter has been added.

**II. REJECTIONS UNDER 35 U.S.C. §§ 102(b) AND 103(a) SHOULD BE WITHDRAWN**

Claims 68-75, 81, 82, 84-87, 89-95, 101, 102, 104-107, 109-116, 118-128, 130, 137-140, 142-145, 147 and 148 stand finally rejected under 35 U.S.C. § 102(b) as being allegedly anticipated by U.S. Patent No. 5,318,024 issued to Kittrell et al. (the "Kittrell Patent"). Claims 83, 88, 103, 108, 117, 129, 131-136, 141 and 146 stand finally rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over the Kittrell Patent, in view of U.S. Patent No. 3,941,121 issued to Olinger et al. (the "Olinger Patent"). Claims 76-78 and 96-98 stand finally rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over the Kittrell Patent, in view of International Publication No. WO 99/44089 by Webb et al. (the "Webb Publication"). Claims 79, 80, 99 and 100 stand finally rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over the Kittrell Patent, in view of U.S. Patent No.

5,275,594 issued to Baker et al. (the “Baker Patent”). Applicants respectfully assert that the Kittrell Patent, taken alone or in combination with the Olinger Patent, the Webb Publication and/or the Baker Patent, fails to teach, suggest or disclose the subject matter recited in amended independent claims 68, 89, 113, 125 and 131, and the claims which depend therefrom.

In order for a claim to be rejected as anticipated under 35 U.S.C. § 102, each and every element as set forth in the claim must be found, either expressly or inherently described, in a single prior art reference. Manual of Patent Examining Procedures, §2131; *also see Lindeman Maschinenfabrik v. Am Hoist and Derrick*, 730 F.2d 1452, 1458 (Fed. Cir. 1984).

Under 35 U.S.C. § 103(a), a person is not entitled to a patent even though the invention is not identically disclosed or described as set forth in §102, “if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” 35 U.S.C. § 103(a).

The objective standard for determining obviousness under 35 U.S.C. § 103, as set forth in *Graham v. John Deere, Co.*, 383 U.S. 1 (1966), requires a factual determination to ascertain: (1) the scope and content of the prior art; (2) the level of ordinary skill in the art; and (3) the differences between the claimed subject matter and the prior art. Based on these factual inquiries, it must then be determined, as a matter of law, whether or not the claimed subject matter as a whole would have been obvious to one of ordinary skill in the art at the time the alleged invention was made. *Graham*, 383 U.S. at 17. Courts have held that there must be some suggestion, motivation or teaching of the

desirability of making the combination claimed by the applicant (the "TSM test"). *See In re Beattie*, 974 F.2d 1309, 1311-12 (Fed. Cir. 1992). This suggestion or motivation may be derived from the prior art itself, including references or disclosures that are known to be of special interest or importance in the field, or from the nature of the problem to be solved. *Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc.*, 75 F.3d 1568, 1573 (Fed. Cir. 1996).

Although the Supreme Court criticized the Federal Circuit's application of the TSM test, *see KSR International Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1741, (2007) the Court also indicated that the TSM test is not inconsistent with the *Graham* analysis recited in the *Graham v. John Deere* decision. *Id.*; *see In re Translogic Technology, Inc.*, No. 2006-1192, 2007 U.S. App. LEXIS 23969, \*21 (October 12, 2007). Further, the Court underscored that "it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does." *KSR*, 127 S. Ct. at 1741. Under the precedent established in *KSR*, however, the presence or absence of a teaching, suggestion, or motivation to make the claimed invention is merely one factor that may be weighed during the obviousness determination. *Id.* Accordingly, the TSM test should be applied from the perspective of a person of ordinary skill in the art and not the patentee, but that person is creative and not an automaton, constrained by a rigid framework. *Id.* at 1742. However, "the reference[s] must be viewed without the benefit of hindsight afforded to the disclosure." *In re Paulsen*, 30 F.3d 1475, 1482 (Fed. Cir. 1994).

The prior art cited in an obviousness determination should create a reasonable expectation, but not an absolute prediction, of success in producing the claimed invention. *In re O'Farrell*, 853 F.2d. 894, 903-04 (Fed. Cir. 1988). Both the suggestion and

the expectation of success must be in the prior art, not in applicant's disclosure. *Amgen, Inc. v. Chugai Pharmaceutical Co., Ltd.*, 927 F.2d 1200, 1207 (Fed. Cir. 1991) (citing *In re Dow Chem. Co.*, 837 F.2d 469, 473 (Fed. Cir. 1988)). Further, the implicit and inherent teachings of a prior art reference may be considered under a Section 103 analysis. See *In re Napier*, 55 F.3d 610, 613 (Fed. Cir. 1995).

Secondary considerations such as commercial success, long-felt but unsolved needs, failure of others, and unexpected results, if present, can also be considered. *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1538-39 (Fed. Cir. 1983). Although these factors can be considered, they do not control the obviousness conclusion. *Newell Cos. v. Kenney Mfg. Co.*, 864 F.2d 757, 768 (Fed. Cir. 1988).

The Kittrell Patent describes a laser endoscope for generating a spectrally resolved spatial image of tissue. Fiber optics positioned within an optically shielded endoscope are used to deliver laser radiation to tissue to be imaged. Radiation returning through the fiber optics from the tissue is spectrally resolved and used to generate an image of tissue that can assist in diagnosis and treatment. (See Kittrell Patent, Abstract).

A generalized spectral system is shown in Figs. 21 and 22 of the Kittrell Patent. As illustrated in Fig. 21, an excitation light 95 is sent from a laser or conventional light source into a selected optical fiber 20. This light passes through a beam splitter 52 or a mirror with a hole 50 (as shown in Fig. 22), and focused onto the input end 40 by a lens 41. The light exits the distal end of the optical fiber 20, passes through the optical shield 12, and impinges on the tissue 34 (of Fig. 4). The fluorescence and scattered light is returned via the same or a different optical fiber 20 to the proximal end 40 of the optical fiber 20. This return light 54 is separated by the beam splitter 52 or by the mirror 50 with hole 51

(see Fig. 22), and enters a spectrum analyzer 60. A diffraction grating 68 of the spectral detector 65 can disperse the return light from a target. The dispersed light is projected onto a multichannel detector 70 which has many detectors. (See *id.*, col. 19, Ins. 20-47). Fig. 13B of the Kittrell Patent illustrates the use of a prism, but without any lens.

The Olinger Patent relates to a needle endoscope includes a hollow needle of about 18-gauge, a lens system within the needle, an image transmitting bundle of flexible fiber-optic rods within the needle, a plurality of illumination transmitting fiber-optic rods within the needle, an operative channel within the needle, and apparatus to shift the image transmitting bundle with respect to the lens system and needle to provide focus adjustment for focusing the endoscope on objects at various distances from the end of the needle. (See Olinger Patent, Abstract).

The Webb Publication relates to a scanning confocal microscopy system, especially useful for endoscopy with a flexible probe which is connected to the end of an optical fiber (9). The probe has a grating (12) and a lens (14) which delivers a beam of multi-spectral light having spectral components which extend in one dimension across a region of an object and which is moved to scan in another dimension. The reflected confocal spectrum is measured to provide an image of the region. (See Webb Publication, Abstract).

The Baker Patent relates to angioplasty system and method for identification and laser ablation of atherosclerotic plaque at a target site in a blood vessel. Such system and method employ fluorescence analysis for identification of noncalcified plaque and calcium photoemission analysis for identification of calcified plaque. Calcified plaque is identified by time domain analysis of calcium photoemission. A high energy pulsed

ultraviolet laser can be used for stimulation of fluorescence and for stimulation of calcium photoemission. The system is capable of distinguishing between calcium photoemission and a defective condition of optical fibers that are used to deliver laser energy to the target site. In another embodiment of the angioplasty system, calcium photoemission is identified during a nonablative initial portion of the laser ablation pulse. When calcium photoemission is not identified, the laser ablation pulse is terminated during the initial nonablative portion thereof. (See Baker Patent, Abstract).

Applicants' invention, as recited in amended independent claim 68, relates to an apparatus for obtaining information associated with a structure which comprises, *inter alia*:

**a lens arrangement which is configured to provide there through electro-magnetic radiation; and**

**a dispersive arrangement configured to receive at least one portion of the electro-magnetic radiation and forward a dispersed radiation thereof to at least one section of the structure regarding which the information is being obtained**

Applicants' invention, as recited in amended independent claim 89, relates to an apparatus for obtaining diagnostic information associated with a structure and modifying at least one property of at least one portion of the structure which comprises, *inter alia*:

**a lens arrangement and a plurality of fibers configured to provide there through the electro-magnetic radiation, at least one first fiber of the fibers being configured to provide a first electro-magnetic radiation to the at least one portion of the structure regarding which the information is being obtained** so as to obtain the information, and at least one second fiber of the fibers configured to provide a second electro-magnetic radiation to the at least one portion so as to modify the at least one property; and

**a dispersive arrangement configured to receive the first and second electromagnetic radiations.**

Applicants' invention, as recited in amended independent claim 113, relates to an apparatus for obtaining information associated with a structure which comprises, *inter alia*:

**a lens arrangement configured to provide a plurality of electro-magnetic radiations, and a dispersive arrangement configured to receive the electro-magnetic radiations and forward a dispersed radiation of each of the electro-magnetic radiations to at least one portion of the structure regarding which the information is being obtained** and at least partially overlap the at least one portion ... .

Applicants' invention, as recited in amended independent claim 125, relates to an apparatus for obtaining information for a structure which comprises, *inter alia*:

**a lens arrangement configured to provide an electro-magnetic radiation, and a dispersive arrangement configured to receive at least one portion of the electro-magnetic radiation and forward a dispersed radiation thereof to a particular location on at least one portion of the structure regarding which the information is being obtained** ... .

Applicants' invention, as recited in independent claim 131, relates to an apparatus for obtaining information associated with a structure which comprises, *inter alia*:

**a lens arrangement which is configured to provide there through electro-magnetic radiation; and**

**a dispersive arrangement configured to receive at least one portion of the electro-magnetic radiation and forward a dispersed radiation thereof to at least one portion of the structure regarding which the information is being obtained** ... .

Thus, each of amended independent claims 68, 89, 113, 125 and 131 recites a "dispersive arrangement" and that the radiation is forwarded to at least one portion of a "structure regarding which the information is being obtained."

In the Final Office Action, the Examiner first contends that the pickup device 70 of the Kittrell Patent can be equated to the recited structure as provided in the

independent claims. However, this arguments is inaccurate. (See Final Office Action dated May 8, 2009, p. 2, Ins. 5-15). Then, the Examiner contends that Fig. 13B of the Kittrell Patent shows a prism, due to such disclosure allegedly uses lenses 40 and 41 (provided for completely different embodiment of the Kittrell Patent) with such prism (equated by the Examiner to the recited dispersive arrangement) to allegedly disclose the subject of the independent claims of the present application. (See *id.*, p. 2, Ins. 16-22). Indeed, the Examiner now points to Figs. 21 and 22 for disclosing such lenses 40 and 41.

However, Applicants respectfully assert that the dispersive arrangement (40, 41) and grating in a spectrometer 68 of the Kittrell Patent do not direct radiation (either directly or indirectly) to ***any structure for which the information is being obtained.*** Instead, these lenses 40, 41 of the Kittrell Patent forward the dispersed radiation onto the detector (70). The detector can no way be a structure for which the information is being obtained, as recited in amended independent claims 68, 89, 113, 125 and 131. Indeed, the detector (70) the Kittrell Patent receives and detects information about the structure. Indeed, not for any reason relation to patentability of these claims and to expedite the prosecution of the present application, independent claims have been slightly modified to explicitly state that the information being obtain is associated with the structure, which means that such information is not merely forwarded to any structure.

As indicated above, in the Final Office Action, p. 2, Ins. 5-15, the Examiner questions the recitation of the structure. However, it should have been obvious to those having ordinary skill in the art when reviewing the claims of the present application that the information obtained is regarding or associated with the structure, and not merely forwarded to any detector. To expedite the prosecution of the present application,



independent claims 68, 89, 113, 125 and 131 have been amended to indicate that the structure to which the radiation is being forwarded to is the structure for which the information is being obtained. Accordingly, for at least such reasons, the Examiner's alleged position as set forth in the latest Final Office Action equating the detector (70) to the recited "structure" is not sustainable.

Further, as provided above, the Examiner points to Fig. 13B, and states that the prism in that figure equates to a dispersive arrangement. (See Final Office Action, p. 2, Ins. 16-22). While Fig 13B of Kittrell does not illustrate any prism, Fig. 13D thereof does show a prism. However, in this Fig. 13D, there are no lens arrangements provided whatsoever, much less any lens which is configured to provide the electro-magnetic radiation therethrough, which is then received by the prism (equated by the Examiner to Applicants' recited dispersive arrangement). The combination of the lens and the dispersive arrangements as recited in amended independent claims 68, 89, 113, 125 and 131 is very important so as to, e.g., obtain a *macroscopic image* of the sample.

For example, if no lens is provided with the dispersive arrangement, then different dispersive components produced by the dispersive arrangement would overlap, and if any image is to be produced, it would be of such poor quality as being potentially unusable. Indeed, Applicants respectfully assert that nowhere in the Kittrell Patent is there any disclosure, teaching or suggestion of the above combination of the lens providing the electro-magnetic radiation either directly or indirectly to at least one portion of the same regarding which the information is being obtained, and the grading receiving it.

The Olinger Patent, the Webb Publication and/or the Baker Patent do not cure such deficiencies of the Kittrell Patent, and the Examiner does not contend that they do.

Accordingly, Applicants respectfully submit that the Kittrell Patent, taken alone or in combination with the Olinger Patent, the Webb Publication and/or the Baker Patent, does not render obvious the subject matter recited in independent claim 68, 89, 113, 125 and 131. The claims which depend from such independent claims are also not taught, suggested or disclosed by the Kittrell Patent, taken alone or in combination with the Olinger Patent, the Webb Publication and/or the Baker Patent for at least the same reasons.

Regarding claims 83 and 103, these claims depend from independent claims 68 and 89, respectively, and further now include the recitation of **a fluid displacement arrangement acts on the dispersive arrangement**. The Examiner appears to be attempting to combine the Olinger Patent with the Kittrell Patent to allegedly teach or suggest such subject matter. However, even if, *arguendo*, the Olinger Patent describes a needle which is part of or includes a fluid displacement arrangement, the Olinger Patent fails to cure the deficiencies of the Kittrell Patent to teach or suggest that any such fluid displacement arrangement **acts on the dispersive arrangement**. No such action is even mentioned, much less taught or suggested in the Olinger Patent. In the Final Office Action, the Examiner does not even point to any section of the Olinger Patent which teaches or suggests that the displacement arrangement **acts on the dispersive arrangement**.

With respect to claims 142-146, these claims depend from independent claims 68, 89, 113, 125 and 131, respectively, and further now include the amended recitation that **the dispersive arrangement is structured to provide at least 100**

**spectrally-resolvable points without a controlled mechanical motion.** Indeed, as previously indicated, none of the configurations of Kittrell would be able to provide at least 100 spectrally-resolved points on the sample (without a controlled mechanical motion), at least because no lens is disclosed to be in combination with the dispersive arrangement (providing disperse radiation to the sample). The Kittrell Patent indicates that every point on the image is associated with the spectrum of light returned from the tissue. In the latest Final Office Action, the Examiner contends that the lens establishes the number of spectrally-resolved points, and that it would be obvious to provide such points as recited in these claims. (See Final Office Action dated May 8, 2009, p. 5, Ins. 3-6). However, according to the recitations of claims 142-146, the dispersive arrangement (and not the lens as alleged by the Examiner) is structured and/or establishes the number of spectrally-resolved points.

Regarding claim 147, these claims depend from independent claims 74 and independent claim 68, and also recites that **"the optical fiber has an end portion that is provided at or near a position of an image plane of the at least one portion which is established by the lens."** In the Final Office Action, the Examiner contends that because the lens described in the Kittrell Patent is placed proximal to the dispersive prism which is proximal to the end of the optical fiber in Fig. 13B, he believes that this claim is anticipated by such publication. (See Final Office Action, p. 5, Ins. 11-14). However, nowhere in Figs. 13A or 13B or in any other section of the Kittrell Patent is there any mention, much less teaching or suggestion of where the fiber is at or near a position of an image plane of the portion of the structure.

Regarding claim 148, this claim depends from independent claim 68, and recites “**a processing arrangement which receives data associated with the dispersed radiation provided to the at least one section of the structure, and generates a single image based on the data and as a function of a plurality of wavelengths of the electro-magnetic radiation.**” In the Final Office Action, the Examiner believes that such subject matter is disclosed in the Kittrell Patent. The Kittrell Patent may describe a generation of multiple images, each of which being provided as a function of a single wavelength of the electro-magnetic radiation. However, the Kittrell Patent **does not generate any image which is based on a plurality of wavelengths of the electro-magnetic radiations.** With any of the embodiments described in the Kittrell Patent, even if one would attempt to generate such single image that is based on a plurality of wavelengths of the electro-magnetic radiation, the resultant image would likely not have a sufficient resolution to be useful.

Thus, for at least these reasons, withdrawal of the rejections of these claims under 35 U.S.C. §§ 102(b) and 103(a) is respectfully requested.

### **III. NEW CLAIMS 149-160**

New claims 149-160 are provided to cover certain exemplary embodiments of the present application. Support for these claims can be found in the originally-filed specification and drawings. Claims 149-151, 152-154, 155-157 and 158-160 depend from independent claims 68, 89, 113, 125 and 131, respectively. These claims are believed to be unanticipated and not rendered obvious by the Kittrell Patent, taken alone or in combination with the Olinger Patent, the Webb Publication and/or the Baker Patent for at

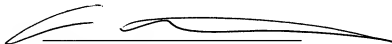
least the same reasons as presented herein above, and are also believed to be separately patentable. Applicants respectfully request that the Examiner provide a confirmation that new claims 149-160 meet the requirements for patentability in the next communication.

**IV. CONCLUSION**

In light of the foregoing, Applicants respectfully submit that all pending claims 68-160 are in condition for allowance. Prompt consideration, reconsideration and allowance of the present application are therefore earnestly solicited.

Respectfully submitted,

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